

Application No: 10/714,887
Amendment dated June 13, 2006
Reply to Restriction Requirement of April 13, 2006

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

Claims 1-12 (canceled)

Claim 13 (currently amended): A transgenic plant comprising a recombinant polynucleotide encoding a polypeptide;

wherein the polypeptide has the property of regulating abiotic stress tolerance in a plant when the polypeptide is overexpressed, wherein the recombinant polynucleotide comprises a nucleotide sequence selected from the group consisting of:

(a) SEQ ID NO: 2N-1, where N=1-210;

(b) a nucleic acid sequence that hybridizes to the nucleotide sequence or the complement of the nucleotide sequence of (a) under stringent conditions that include two wash steps of 6x SSC and 65° C, for 10-30 minutes per step; and

(c) a nucleic acid sequence that is substantially identical to the nucleotide sequence of (a) has an SCR domain that is at least 60% identical to an SCR domain of SEQ ID NO: 4; and wherein the SCR domain of the polypeptide binds to a DNA regulatory sequence.

Claim 14 (currently amended): ~~[[A]] The transgenic plant comprising a recombinant polynucleotide encoding a polypeptide having an AP2 domain, wherein the polypeptide has the property of SEQ ID NO: 12 of regulating abiotic stress tolerance in a plant when the polypeptide is overexpressed, wherein:~~
the AP2 domain is sufficiently homologous to the AP2 domain of SEQ ID NO: 12 that the polypeptide binds to a transcription regulating region of DNA of claim 13, wherein the polypeptide is overexpressed and confers to the transgenic plant greater tolerance to osmotic stress, salt and/or water deprivation as compared to a control plant.

Claim 15 (currently amended): The transgenic plant of Claim ~~[[14]]~~ 13, wherein the recombinant polynucleotide ~~has a nucleotide sequence that hybridizes to SEQ ID NO: 11 or to the complement of SEQ ID NO 11 under stringent conditions that include two wash steps of 6x SSC and 65° C of 10-30 minutes per step~~ transgenic plant is more tolerant to 9.4% sucrose than the control plant.

Claim 16 (currently amended): The transgenic plant of Claim ~~[[14]]~~ 13, wherein the recombinant polynucleotide ~~has a nucleotide sequence that hybridizes to the complement of nucleotide bases 53-256 of~~

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~~SEQ ID NO 11 under stringent conditions that include two wash steps of 6x SSC and 65° C of 10-30 minutes per step~~ transgenic plant is more tolerant to 150 mM NaCl than the control plant.

Claim 17 (currently amended): The transgenic plant of Claim [[14]] 13, wherein the recombinant polynucleotide comprises SEQ ID NO: [[11]] 3.

Claim 18 (currently amended): The transgenic plant of Claim [[14]] 13, wherein the polypeptide comprises SEQ ID NO: [[12]] 4.

Claim 19 (canceled)

Claim 20 (currently amended): The transgenic plant of Claim [[14]] 13, wherein the recombinant polynucleotide comprises a constitutive, inducible, or tissue-specific promoter that is operably linked to a region of the recombinant polynucleotide that encodes the polypeptide.

Claim 21 (canceled)

Claim 22 (currently amended): Seed A transgenic seed produced from the transgenic plant of Claim [[14]] 13.

Claims 23-24 (canceled)

Claim 25 (currently amended): A method for producing a transgenic plant having increased more tolerance to abiotic stress osmotic stress, salt and/or water deprivation as compared to a control plant, the method steps comprising:

- (a) providing an expression vector comprising a nucleotide sequence that ~~hybridizes to the complement of SEQ ID NO 11 under stringent conditions that include two wash steps of 6x SSC and 65° C, each step being 10-30 minutes in duration~~ encodes a polypeptide having an SCR domain that is at least 60% identical to the SCR domain of SEQ ID NO: 4, wherein the SCR domain of the polypeptide binds to a DNA regulatory sequence;
- (b) introducing the expression vector into a plant cell; and
- (c) growing the plant cell into [[a]] the transgenic plant[[.]]; wherein
~~and allowing the transgenic plant to overexpress a~~ overexpresses the polypeptide encoded by the
nucleotide sequence, said polypeptide having the property of increasing abiotic stress tolerance

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- ~~to osmotic stress, salt and/or water deprivation of in the transgenic plant as compared to a non-transformed plant that does not overexpress the polypeptide; the control plant~~
- (d) ~~identifying an abiotic stress tolerant plant so produced with increased abiotic stress tolerance by comparing the transgenic plant with one or more non-transformed plants that do not overexpress the polypeptide; and~~
- (e) ~~selecting said abiotic stress tolerant plant with increased abiotic stress tolerance.~~

Claim 26 (currently amended): The method of Claim 25, the method steps further comprising:

- (e) selfing or crossing said ~~abiotic stress tolerant~~ transgenic plant with itself or another plant, respectively, to produce transgenic seed; and
- (f) growing a progeny plant from the transgenic seed, wherein said progeny plant has increased more tolerance to the abiotic stress osmotic stress, salt and/or water deprivation.

Claim 27 (currently amended): The method of Claim 26, wherein:

said progeny plant expresses mRNA that encodes a DNA-binding protein having ~~an AP2~~ an SCR domain that binds to a DNA molecule, regulates expression of said DNA molecule, which induces the overexpression of the polypeptide; and

said mRNA is expressed in the progeny plant at a level greater than a non-transformed plant that does not overexpress said DNA-binding protein.

Claims 28-33 (canceled)

Claim 34 (currently amended): A method for increasing a plant's tolerance to ~~drought stress~~ osmotic stress, salt and/or water deprivation, the method comprising:

- (a) providing a vector comprising:
- (i) a polynucleotide sequence, ~~wherein the polynucleotide sequence encodes encoding~~ SEQ ID NO [[12]] 4; and
- (ii) at least one regulatory element[[s]] flanking the polynucleotide sequence, wherein said at least one regulatory element[[s]] being effective to control controls expression of said polynucleotide sequence; and
- (b) transforming a target plant with the vector to generate a transformed plant with increased tolerance to ~~drought stress~~ osmotic stress, salt and/or water deprivation as compared to a control plant that does not overexpress SEQ ID NO [[12]] 4.

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Claim 35 (new): The transgenic plant of Claim 13, wherein the transgenic plant is more tolerant to drought than the control plant.

Claim 36 (new): The transgenic plant of Claim 13, wherein the SCR domain of the polypeptide is at least 68% identical to the SCR domain of SEQ ID NO: 4.

Claim 37 (new): The transgenic plant of Claim 13, wherein the SCR domain of the polypeptide is at least 71% identical to the SCR domain of SEQ ID NO: 4.

Claim 38 (new): The transgenic plant of Claim 13, wherein the SCR domain of the polypeptide is at least 74% identical to the SCR domain of SEQ ID NO: 4.

Claim 39 (new): The method of Claim 25, wherein the SCR domain of the polypeptide is at least 68% identical to the SCR domain of SEQ ID NO: 4.

Claim 40 (new): The method of Claim 25, wherein the SCR domain of the polypeptide is at least 71% identical to the SCR domain of SEQ ID NO: 4.

Claim 41 (new): The method of Claim 25, wherein the SCR domain of the polypeptide is at least 74% identical to the SCR domain of SEQ ID NO: 4.

Claim 42 (new): The method of claim 34, wherein the regulatory element comprises a constitutive promoter, an inducible promoter, or a tissue-specific promoter operably linked to the polynucleotide sequence.

Claim 43 (new): The method of Claim 34, wherein the transformed plant produced by the method according to Claim 34 produces a transgenic seed comprising SEQ ID NO: 3.

Claim 44 (new): A transgenic seed produced by the transformed plant produced by the method of Claim 34.